

WHAT IS CLAIMED IS:

1. An apparatus for fabricating an array of biopolymers on a substrate, comprising:

- (a) a substrate station on which the substrate can be mounted;
- (b) a dispensing head having:
 - a reservoir chamber;

at least one jet which can dispense droplets onto a substrate, the jet including a capillary delivery chamber communicating with the reservoir chamber, and which capillary delivery chamber has an orifice and an ejector which, when activated, causes a droplet to be ejected from the orifice;

- (c) a cleaning station which is spaced from the substrate station, and which provides a cleaning fluid for the head;
- (d) a positioning system to selectively position the head facing any one of the stations;
- (e) a pressure source to provide to the reservoir chamber, when the head is facing the cleaning station, a holdoff pressure which is sufficiently positive to prevent cleaning fluid contacting the orifice from entering the delivery chamber;
- (f) a processor which causes the pressure source to provide the holdoff pressure when the head is facing the cleaning station.

2. An apparatus according to claim 1 wherein the head has multiple pulse jets with orifices on a common front face of the head.

3. An apparatus according to claim 3 wherein the cleaning station comprises a pad to carry a cleaning fluid and the positioning system, when the head is facing the cleaning station, wipes at least one of the head and pad across the other.

4. A method for loading a dispensing head with a biopolymer or biomonomer containing fluid, the dispensing head having:

a reservoir chamber; and

multiple jets which can dispense droplets onto a substrate and include respective delivery chambers communicating with the same reservoir chamber, each delivery chamber

having an orifice and an ejector which, when activated, causes a droplet to be ejected from the orifice;

the method comprising:

- (a) loading the fluid through an orifice into a reservoir chamber communicating with the orifice; and
- (b) loading fluid which has entered the reservoir through an orifice into other delivery chambers communicating with the same reservoir chamber.

5. A method according to claim 4 wherein the fluid is drawn into the delivery and reservoir chambers.

6. A method according to claim 4 wherein the delivery chambers are capillary delivery chambers.

7. A method according to claim 4 wherein the reservoir is a capillary reservoir.

8. A method according to claim 4 wherein a negative pressure is provided to the reservoir chamber to assist in the drawing of the fluid through the orifice.

9. A method according to claim 4 wherein the head has multiple reservoirs and a set of the multiple jets for each reservoir, and wherein (a) and (b) occurs at each of multiple reservoirs.

10. A method of fabricating an array of biopolymers on a substrate using a dispensing head with biopolymer or biomonomer fluids, the fluid dispensing head having:

a reservoir chamber;

multiple jets which can dispense droplets onto a substrate, each jet including a delivery chamber communicating with the reservoir chamber, and including an orifice and an ejector which, when activated, causes a droplet to be ejected from the orifice;

the method comprising:

- (a) loading the head through orifices of the jets with biopolymer or biomonomer fluids;
- (a) positioning the head with the orifices facing the substrate;

- (b) dispensing multiple droplets from the head orifices so as to form an array of droplets on the substrate;
- (c) positioning the head with the orifices facing a cleaning station which is spaced from the substrate;
- (d) exposing the head about the orifices to a cleaning fluid from the cleaning station; and
- (e) repeating (a) to (e) as needed so as to form the array.

11. A method according to claim 10 wherein the cleaning station comprises a pad carrying cleaning fluid and the head is exposed to the cleaning fluid by wiping at least one of the head and pad across the other.

12. A method according to claim 4 wherein the fluid is a polynucleotide containing fluid.

13. A method according to claim 4 wherein the fluid is a polymer of amino acids.

14. A method according to claim 10 wherein the fluids are polynucleotide containing fluids.

15. A method according to claim 10 wherein the fluids contain amino acid polymers.